Dear FCC,
Regarding the Notice of Inquiry in ET Docket 03-104, I am extremely opposed to the implementation of BPL "Broadband over Power Line" technology. This alone would cause severe damage to the existing amateur radio service, especially in the HF-VHF regions of the spectrum, not to mention to several existing commercial services. I being a licensed extra class amateur radio operator callsign W2CO, as well as a commercially licensed GROL# PG-GB-029372 with ship radar endorsement, am strongly against this proposal.

Here are some of my arguments:

*Amateur Radio is a valuable resource that must be protected, especially in the HF bands. Other services like Police VHF, Fire VHF, Marine HF/VHF, aeronautical comms/navigation HF/VHF not to mention military MARS and many many other services the list of users is endless, are also in danger of harmful interference directly from this proposed technology.

*BPL systems that radiate on wide swaths of spectrum and that occupy entire neighborhoods have far greater interference potential to existing services than localized systems, such as switching power supplies, electric motors, noisey doorbell transformers, etc. These are all "point source" interferences. With BPL being a "wide area" radiator, it would be very difficult to track down any source of interference as it would be "conducted to every outlet" repeated in the neighborhood and also be "radiated" to far distances randomly by ionospheric propagation. Just the bypass devices (2 way) that will be needed across the step down transformers would also cause every part 15 device now in use to become a "wide area" radiator as well.

*With proposed BPL, the HF spectrum will be rendered useless. The harmonics thereof would reach up into the VHF, UHF, and even microwave spectrum assuming the proposed higher power levels and the unpredictable lossy power grid system today. The HF spectrum has the very special quality of having ionospheric skip zone capabilities, and this region of spectrum (3-30Mhz) is the only region that exhibits this rare quality. This quality is very random in nature as to where, when, and how far the signals will propagate. Time of day, solar conditions, MUF etc., are all variable and must be accounted for. Just this fact would promote possible uncontrolled interference to other countries to which the ITU has imposed strict rules governing interference from abroad.
We would essentially be bringing back the "Russian Woodpecker" to these countries via skip zone. With the increased power levels and the thousands of miles of wire in the nation's power system, there would be unacceptable levels of interference in far away countries due to random addition of the radiated wideband signals, and from ionospheric propagation.
Are the said companies ready to handle complaints from these other countries and are they willing to conduct appropriate testing in this regard prior to deployment? I have not seen anything yet that addresses these facts. Since this testing would require years of data collection from far away sites in different directions and the present condition of propagation in the 2-30Mhz bands, it is premature to deploy this technology at this time. We are currently in the downswing of the current 11 year cycle, and maybe it is by the power company's design that deployment should be now (in the approaching low) times of ionospheric propagation.

*The FCC has promised to protect licensed users of this spectrum. They must

execute this responsibility. After many years of adjusting rules and regulations regarding the RF spectrum as a whole, you are now at the threshold of throwing it all away and causing a nationwide security threat!

*If you have had any experience with the power companies, you will know that they cannot handle even the most simple problems with noise, if at all respond. If they start to provide BPL technology, they will be way over their heads as far as being able to cope with the interference complaints. And will probably not even respond, not to mention the interference hams and other services will introduce into this system. The companies said that an HF station transmitting only 1-10W EIRP anywhere from 1-30MHZ would cause harmful interference to this system. It's a vicious two way street here. HF-VHF bands would be ruined as far as hams using them, and the harmonics of the BPL system would reach all the way up into the GHZ ranges because of the increased power levels they propose. Power lines were not designed to carry HF-VHF frequencies, they were designed to carry 60hz AC! And they can hardly do that very well with all the lossy insulators etc etc. Imagine the noise levels this lossy system of wires all over the country would cause. Lets face it, Broadband Over Power Lines is a very bad idea for ham radio and many other services as we know them. Japan has already BANNED any use of this system, even with low power levels. They have tested it along with some other european countries, and all have had very bad results for the HF-VHF bands! This same result would of course be noticed by many other users of the HF/VHF spectrum. Why should we let HF radio be ruined just because some money hungry companies say it's great for business? On the contrary, the power companies would have to put out Millions of dollars in order to deploy the equipment and the bypass devices across the step down transformers alone would command much of this funding. They would then be looking for new revenue flow from existing customers of better designed, existing systems (Dial up, Cable Modem, DSL, Satellite, etc.) to replenish the cost of implementation of this technology. Data shows that the reliability and speed of BPL in the field will only approach that of Cable Modem and that only when user load is low and bit error rate is good. The bit error rate will be degraded constantly from static crashes, power surges/switches, local HF transmissions, ionospheric noise, electric motors, garage door openers, microwave ovens, unknown building wiring schemes, solar disruptions, the list goes on and on.
The remote area users would be relatively low in numbers compared to the existing numbers of internet accounts. And I don't think existing users of such reliable and secure means as DSL or Cable Modems are going to switch over.
What about security? I have not seen anything from said companies regarding security, and I'm sure they fully realize that any HF receiver sitting near a power line could easily "eavesdrop" on that line and all users on it! This would make all data transactions easily intercepted, and I bet that would open the door even wider for terrorism via internet corruption.
The companies also would have to account for all the UPS and EMI power strips that users utilize now, as the BPL signals would be greatly attenuated through any of these devices. There are many systems in use today at business and homes that use EMI/UPS equiped power devices. I don't think they would like to do without this protection. BPL as well as Homeplug technology just does not work well with any EMI filtering devices.

*As mentioned in the above paragraph, other countries have already tested this technology and have found it to be very harmful to HF/VHF communications. Why can't the engineers responsible learn from these studies instead of wasting more time and money on something that physics just doesn't allow, the propagation down long open wires of HF signals, they WILL radiate.

This is why they must repeat the signals every other block!
The ARRL has recently posted results that closely resemble the above mentioned countries' results on their website at:
http://www.arrl.org/news/stories/2003/08/08/2/?nc=1
There is also an actual video of the interference caused by BPL using a mobile HF receiver and a low gain antenna system, traveling along roadways and neighborhoods at or near the various test sites. This clearly shows what the power/networking companies fail to show to date, the interference BPL WILL cause. Imagine what the interference levels would be with high gain antennas. And these results are with only the "low power" version of BPL!

Conclusion
I hereby propose that BPL technology be barred from operating freely on any power lines. Should it be deployed, any harmful interference caused by licensed services to said service should be allowed, and any harmful interference to licensed services caused by said service be barred, as per part 15 of the FCC rules. This of course would mean not allowing BPL to even begin deployment as it WILL cause harmful interference to licensed services.
Part 15 should have no changes except for tightening of the emmission levels allowed for part 15 devices now. Many existing part 15 devices today are already causing unacceptable interference, but this technology would create pure havoc on the HF/VHF spectrums. Because of the bypass devices proposed, many part 15 devices today will also become "wide area" radiators.
Since BPL will not really be a "point source" emmission, but a "wide area" radiator in itself, perhaps new rules should be written to inform future engineers of this technology that it just will not co-exist with other licensed spectrum users as long as they use open wires.

The answer to this "last mile" need is go FIBER! It's already mostly there. Why not complete that "last mile" of fiber optic cable to the homes and businesses, the data rates/error rates of fiber would be 100X that of BPL. And it would be RF immune both incoming and outgoing.

Regards,
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GROL PG-GB-029372